

THE WESTERN AUSTRALIAN NATURALIST

Vol. 5

MARCH 22, 1956

No. 3

GECKONIDAE (PART II)

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The scalation on the head of the Geckonidae is much altered, being reduced for the most part to small granular scales. It is, however, possible to identify those which surround the mouth and nostrils. These comprise the rostral, upper labials and the nasals; of these the anterior nasals of the following descriptions are also known as inter-nasals. The mental (chin) and lower labials can also usually be distinguished. In the genus *Diplodactylus* these shields are of considerable importance.

GENUS *DIPLODACTYLUS**

Digits free, not dilated at the base, sometimes widened at the tip, all clawed, the claw retractile between two plates under the extremity of the digit, basal portion below with transverse lamellae or tubercles; upper surface covered with uniform small scales. Upper surface of the head and body covered with juxtaposed scales or granules uniform or inter-mixed with large tubercles or spines. Abdominal scales at times slightly overlapping. Pupil vertical.

* In the key to the genera of W.A. Geckonids on page 175 of Volume 4, the words *Phyllodactylus* and *Diplodactylus* were inadvertently transposed.

- a. scales on the back not uniform:
 - b. enlarged scales or tubercles dark:
 - c. tail with two rows of spines *spinigerus*
 - cc. tail without rows of spines *strophurus*
 - bb. enlarged scales or tubercles white and glossy, in
 - a black ring *elderi*
- aa. scales on the back uniform:
 - d. digits with large transverse lamellae below:
 - e. a number of longitudinal stripes above and below. Anterior nasals not in contact *michaelseni*
 - ee. anterior nasals in contact. Longitudinal stripes absent or limited to bordering the vertebral area *vittatus*
 - dd. digits with circular or oval granules below:
 - f. one anterior labial enlarged, the rest not larger than the adjacent granules *conspicillatus & hilli*

ff. upper labials enlarged decreasing in size backwards:

g. rostral entering the nostril *alboguttatus*

gg. rostral not entering the nostril:

h. first labial entering the nostril *stenodactylus*

hh. first labial not entering the nostril *pulcher*

DIPLODACTYLUS SPINIGERUS (Gray)

Head oviform, snout rounded, longer than the distance between the eye and the ear opening; ear opening roundish or oval and oblique. Body and limbs moderate. Digits with large transverse lamellae below, about seven under the fourth toe, two or three basal ones often divided. Upper surface granular with conical tubercles which may take the form of soft spines towards the tail, usually arranged in two irregular lines bordering the zigzag band along the back. Rostral more or less pentagonal, completely divided; nostril pierced between the rostral, first labial and three or four small nasals; from 12 to 14 labials, at times 10 to 15; mental small, trapezoid, slightly larger than the adjacent labials. Lower surface covered with uniform granules larger in the greyish form.

Males with about a dozen preanal pores and three or four enlarged tubercles on each side of the base of the tail. Tail about as long as the body without the head, covered with irregularly spaced granules and bearing dorsally two rows of soft spines. Upper surface greyish with a darker zigzag band along the back and a fainter one along the sides; or almost uniform dark brown, often with a faint indication of the dorsal band. Under surface whitish or yellowish with scattered blackish granules.

Length: 140 mm. ($5\frac{1}{2}$ inches).

KEY TO THE FORMS

a. no large spines over the eyes *spinigerus spinigerus* (Gray)

aa. two large spines over the eyes:

b. area between the two rows of spines on the tail uniformly granular *spinigerus ciliaris* (Blng.)

bb. area between the two rows of spines on the tail with rows of enlarged tubercles *spinigerus aberrans* (Glaupert)

DISTRIBUTION

D.s. spinigerus—Widespread south of 26°S and on islands off the coast.

D.s. ciliaris—Inland north of 30°S.

D.s. aberrans—West Kimberley and the Pilbara Districts.

DIPLODACTYLUS STROPHURUS (Dum. and Bibr.)

Head oviform, snout rounded, as long as, or slightly longer than the distance between the eye and the ear opening; ear opening roundish. Body and limbs moderate. Digits with large transverse lamellae below, seven under the fourth toe, three basal ones

divided, the others emarginate, almost cordiform. Upper surface rather coarsely granular, smallest on the sides, with irregularly scattered tubercles, which may be flattened or conical. Rostral rectangular or faintly pentagonal, not divided; nostril pierced between the rostral, first labial, and three nasals, the anterior the largest; ten, eleven or twelve upper labials, ten or eleven lower; mental trapezoid, not much larger than the adjacent labials. Lower surface covered with small uniform granules. Tail shorter than the body, covered with whorls of granules and sub-conical tubercles, three rows of granules and one of tubercles on each segment, at times imperfect below. Upper surface uniform brownish, black in three instances, dark grey in another, under surface uniform whitish.

Length: 140 mm. (5 inches) females.

The specimens in the collection are from Exmouth Gulf, Shark Bay and Murehison areas.

DIPLODACTYLUS ELDERI (Stirling and Zietz.)

Head oviform, convex; snout rounded, a little longer than the distance between the eye and the ear-opening and more than once and one half the diameter of the orbit; ear-opening minute, oblong, vertical, 1mm. long. Body moderately elongate, depressed. Limbs moderate; digits much depressed, with large transverse lamellae below, five under the fourth toe of which the distal is incised and cordiform. Body and limbs covered with small, smooth granules inter-mixed with larger ones of different sizes, which are very white and glossy and form the centre of black annuli, which are sometimes confluent and arranged in very irregular oblique or transverse rows; at the side they become smaller and more scattered; on the limbs and tail they are still smaller. Colour brownish grey above with black annuli, under surface light coloured with large whitish spots forming two median and two lateral rows. Total length of a specimen from Ellery Creek, South Australia — 66 mm (2½ inches); head length 11 mm; width 8 mm; body 31 mm; tail 24 mm; fore limb 15 mm; hind limb 17 mm.

The type was collected at the Barrow Range near the South Australian borders. The species is not represented in the Museum's collection.

DIPLODACTYLUS MICHAELSENI, Werner

Head high, convex, snout slightly rounded, hardly longer than the distance from the eye to the ear-opening; half as long again as the diameter of the eye. Eye large. Ear small, circular. Body and limbs rather slender; digits moderate, somewhat depressed. No visible distal expansion, lower surface with transverse lamellae, the three apical entire, the others divided. Dorsal and ventral surfaces covered with small, smooth convex granules. Rostral pentagonal with a median groove. Nostril pierced between the rostral, first upper labial and six nasals, the first, the largest, separated from its fellow by three granules; thirteen upper and thirteen lower labials; mental small, trapeze-shaped, not differing

from the adjacent labials, no chin shields. Tail somewhat swollen, covered with scales like those on the rest of the body. Coloration light reddish brown (tail more yellowish brown), with yellowish white, dark-edged stripes, the vertebral extending from the occiput to the tail, becoming indistinct on the tail, a second pale stripe commencing on the canthus rostralis halfway between the nostril and the eye, passes along the side of the head and body to the tip of the tail, another indistinct band, partly reduced to elongated markings, extends from behind the eye to the root of the tail; another parallel to this but more complete, extends from the gape of the mouth over the ear to the insertion of the hind limbs; below this faint indications of one or two further stripes can be distinguished. Under surface with traces of dark longitudinal stripes. Occiput with a pale horseshoe mark; throat and limbs with indistinct dark spots.

Length: $53 + 27$ mm (3 inches). Head 15 mm long, 10 mm wide.

Forelimbs and hind limbs equal (20 mm).

A single specimen (the type) is known from Denham, Shark Bay.

DIPLODACTYLUS VITTATUS, Gray

Head short, very convex, snout rounded, slightly longer than the distance from the eye to the ear opening; ear opening small, round or horizontally oval. Body short, limbs moderate. Digits short, depressed, somewhat expanded distally, below with a series of enlarged oval tubercles, at times breaking into two, the two



Diplodactylus vittatus — Queen Victoria Springs

—Photo by Vincent Serventy

oval plates at the tip separated from enlarged tubercles by a narrow area covered with small granules. Upper surface covered with uniform small granules, largest on the snout. Rostral rectangular, twice as wide as high, with or without a short median groove; nostril pierced between the rostral, first labial and five or six nasals, the anterior largest and in contact with its fellow, the others granular, ten, eleven or twelve upper labials decreasing gradually in size backwards; up to thirteen lower also gradually decreasing backwards; mental trapezoid but slightly larger than the adjacent labials. Under surface covered with small homogeneous granules, smallest on the chin and throat, largest on the lower abdomen. Tail about as long as the body without the head, somewhat swollen, tapering to a point and constricted at the base, with whorls of subrectangular scales much larger than those on the back. Males with a small group of pointed conical tubercles on each side of the base of the tail, no pores. Colour very variable, brown above with a light dark-edged festooned vertebral band; bifurcating on the nape and extending to the eyes; the markings may be broken up to make reticulations and transverse spots, the *ornatus* of Gray, or into numerous small whitish spots, the *polyophthalmus* of Guenther. In all cases the sides are more or less intensely spotted and the undersurface white and immaculate. The lizard grows to about 85 mm (3½ inches).

The species is found in many parts of the State from Nicol Bay and Bernier Island in the north throughout the South-West and east along the coast to Eyre. It has also been collected in the Eastern Goldfields.

DIPLODACTYLUS CONSPICILLATUS,

Lucas and Frost

Head high, convex, snout pointed, longer than the distance between the eye and the ear-opening, ear-opening small, rounded. Body moderate, limbs slender, when adpressed they meet or overlap. Digits with somewhat enlarged rounded tubercles below, apex not dilated, with two small oval plates below. Upper surface of body covered with small granular scales, largest on the back, smaller ventrally and smallest on the sides. Rostral large, hexagonal, not twice as wide as high, faint median cleft above; nostril pierced between seven or eight nasals, the anterior and upper ones largest, the rest small and granular; a hexagonal plate separates the swollen anterior nasals; one anterior labial enlarged, the rest not larger than the adjacent granules; mental large with a small process behind; lower labials not distinguishable from the adjacent granules. Ventral scales small, oval, granular. Tail short, suboval, mucronate, slightly convex above, flattish below with rows of transverse, swollen, hexagonal scales above and rounded slightly overlapping granules below, not regularly arranged. Males without pores but seven or eight small blunt conical spines on each side behind the vent.

Pale yellow orange with irregular natal brown reticulations on the body and limbs, head with dark spots on the crown, snout uniform natal brown with a pale band from the rostral along the canthus rostralis to above the eye; ventral surface almost uniform whitish. Length up to 75 mm (3 inches).

Originally discovered in Central Australia (Charlotte Waters) the species has since been recorded from Lawlers and Broome.* The only specimen in the collection was found near Carnarvon.

* This will probably be found to be *D. hilli*.

DIPLODACTYLUS HILLI, Longman

This lizard is closely related to the preceding and may be merely a sub-species, as suggested by Loveridge. It can be separated by its shorter limbs, which do not overlap when adpressed, the scalation, the dorsals and ventrals being about equal, and the granules on the underside of the tail which are arranged in regular transverse rows; the tail also lacks the mucro. The colouration too is different, being greyish with the darker reticulation replaced by a peppering of dark brown which is intensified in places to suggest cross bands; on the head there is the pale canthus rostralis bordered above and below by uniform dark brown. The under surface is immaculate whitish.

This gecko has been recorded from Darwin, the type locality, and Kalgoorlie. The single specimen in the Museum's collection was obtained at Wotjulum in West Kimberley.

DIPLODACTYLUS ALBOGUTTATUS, Werner

Snout rounded, slightly longer than the distance between the eye and the ear-opening, one and a quarter times as long as the diameter of the eye. Eye large. Ear-opening small, elliptical, oblique. Limbs rather slender, fingers and toes moderately long, not expanded distally, below with granules and two small rounded plates at the tip. Tail rather long, slightly thickened, then tapering gradually to the tip.

Scales homogeneous, dorsals not markedly larger than the laterals, distinctly larger than the ventrals, overlapping; scales on the tail in regular whorls. Rostral almost twice as wide as high, rectangular, with a short median division above. Nostril pierced in the rostral, first labial and four nasals, the upper much enlarged, in contact with its fellow. Ten or eleven upper labials, eleven or twelve lower; mental longer than wide trapezoid, rounded behind, not larger than the adjacent labials, gular scales in contact with the lower labials somewhat enlarged.

Length 44 + 42 mm (3½ inches); head 14 mm; width 8 mm; fore limb 15 mm; hind limb 19 mm.

Male with three small conical tubercles on each side of the base of the tail.

Pale grey, almost white, with indistinctly bordered light brown spots dorsally, a very indistinct grey lateral zone on which are a row of rather large round, white spots, another row above these,

bordering the dorsal zone. Limbs with brown marblings and small, white spots. Tail with brown markings which may take the form of reticulations or indistinct cross bands. North-west Australia. Type locality Denham, Shark Bay. The Museum has a specimen from Hooley Station.

DIPLODACTYLUS WOODWARDI, Fry

The only specimen is the type which is somewhat shrivelled and discoloured, the description is therefore approximate and based upon Fry.

Head elongate oviform, very convex, snout rounded, as long as the distance from the eye to the ear. Ear-opening very minute. Body and limbs moderate, tail as long as the body without the head, apparently not incrassated. Digits cylindrical, not widened at the tip, with a row of enlarged granules below and two slightly diverging plates at the tip. Rostral twice as broad as high, pentagonal, notched above with a short groove extending down the upper third. Nostril pierced between the first upper labial and four nasals, the anterior largest and separated from its fellow by two enlarged, hexagonal granules. Eleven upper labials, mental longer than broad, broader in front than behind, slightly longer than the adjacent labials. Scales on the head granular, very convex, largest on the snout bordering the labials; on the back like those on the head, larger than those on the sides, those on the ventral surface flattened and slightly overlapping; on the limbs granular, on the tail squarish, larger than the body scales, arranged in rings.

In the original descriptions the colour is given as "Back light brownish, with eight or nine alternating darker brown bands consisting of a network enclosing occasional white spots. Large white spots on the sides between the bands. A band of reticulations on the loreal region and behind the eyes, connecting with its fellow on the occipital region. Upper surface of limbs with faint reticulations. Tail with alternating brown bands dorsally, connected with each other laterally. Under surface uniform creamish."

Total length: 51 mm (2 inches).

The only specimen, the type, was collected in the Strelley River area by Dr J. B. Cleland.

NOTE.—Lizards vary in proportions and colour, the young being at times markedly different from the adult, so that it is possible that this may be the young of *D. alboguttatus*.

DIPLODACTYLUS STENODACTYLUS, Blng.

Head very convex; snout rounded, as long as the distance between the eye and the ear-opening; ear-opening small, round. Body and limbs rather stout; digits not dilated at the tip, covered above and below with small granular scales, apical plates small, longer than broad. Body and limbs covered with granules, those on the snout the largest; rostral twice as wide as high, with a median cleft above. Nostril pierced between the first labial and five nasals, the first the largest, and in contact with its fellow, the

others small and granular; ten upper and ten lower labials. Mental trapezoid, no chin shields but enlarged flat granules gradually passing into the minute granules on the throat. Male with 3 pre-anal pores on each side and a conical tubercle at the root of the tail on each side. Tail constricted at the base, then somewhat swollen and tapering to the tip. Colour pale brownish above with a light brown-edged vertebral stripe, bifurcating on the neck, passing through the eye, its branches meeting again at the tip of the snout; the crown dotted with lighter colour, lower parts white. Tail coloured like the back. Mouth to vent 45 mm ($1\frac{3}{4}$ inches); head 12 mm; width of head 8 mm; fore limb 14 mm, hind limb 19 mm.

Described from a single specimen without a tail, caught at Roebuck Bay by F. Dahl. It is also known from Derby. Not represented in the collection.

DIPLODACTYLUS PULCHER, Steind

Head short, very convex, snout pointed, longer than the distance between the eye and the ear-opening, about once and one third the diameter of the eye; ear-opening small, circular or oval. Body moderate; limbs rather long and slender. Digits with small round tubercles below, apex not dilated, with two oval plates distally. Upper surface covered with small granules, largest along the middle of the back. Rostral large, pentagonal, slightly notched above with or without traces of a short median groove; nostril pierced between five, six or seven nasals, the anterior the largest, separated from its fellow by a polygonal scale, labials rather variable from eleven to thirteen upper and eleven or twelve lower, the first much the largest, the others but a little larger than the adjacent granules; mental subpyramidal, rounded behind, about twice as long as the adjacent labials. Scales on the lower surface small, granular, smaller than those on the back. Tail pointed, somewhat swollen, constricted at the base, about as long as the body without the head, covered with whorls of small subquad-rangular granules. Males without pores, a group of about six conical tubercles on each side of the base of the tail.

Colour variable, generally wood-brown above with irregular light transverse spots edged with blackish on the body and tail, ground colour becoming gradually lighter on the side passing into the white of the under surface, with one or two lines of whitish dots; head like the back with a dark horseshoe line extending from behind the eyes round the occiput. A colour variation in which the light transverse spots are represented by a pale dark-edged vertebral stripe, representing the variety *dorsalis* of Werner, is known from Bernier Island in the north to Toodyay in the south. This may also be the *bilineatus* of Lucas and Frost from Central Australia although the "anterior nasals" are not in contact. Average length about 80 mm ($3\frac{1}{4}$ inches). The distribution is very widespread in Western Australia from the Pilbara area in the north to Beverley in the south, and from the west coast of the Gascoyne region to Central Australia. It is not known to occur in the Metropolitan area.